



LIFE FROSTDEFEND

Newsletter #5

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LIFE20 CCA/GR/001747

The project

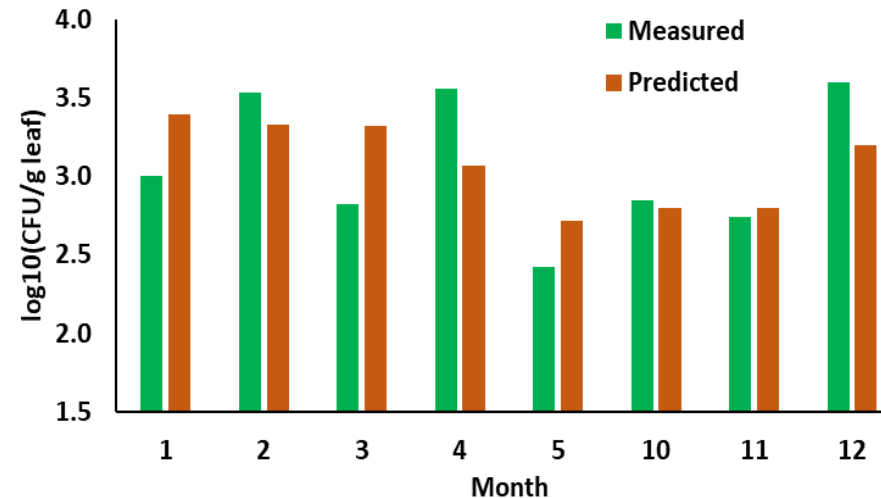


The LIFE FROSTDEFEND project is now entering its fourth year, having made significant progress in developing the tool and evaluating various spraying schemes to reduce epiphytic bacterial populations and ice nucleation activity on lemon tree leaves.



Monitoring device operating in a lemon orchard

Parameters such as aerosol mass concentration, CO₂ concentration, and ambient wet temperature were found to correlate with the total bacterial concentration. These parameters were subsequently used to predict the bacterial population and their ice nucleation efficiency!



Measured and predicted average epiphytic bacterial populations during frost-prone months

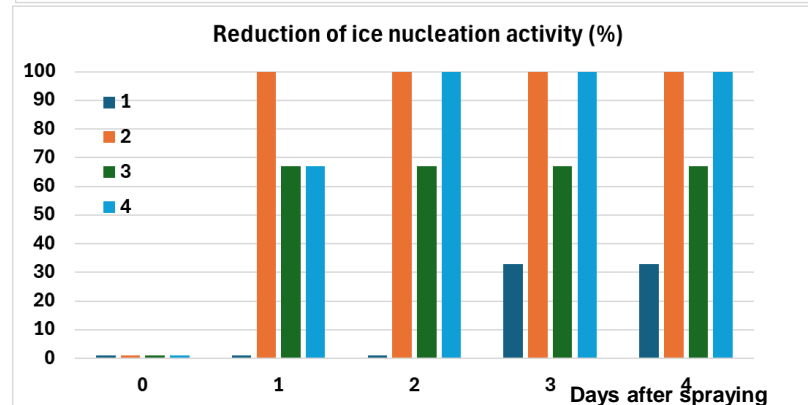
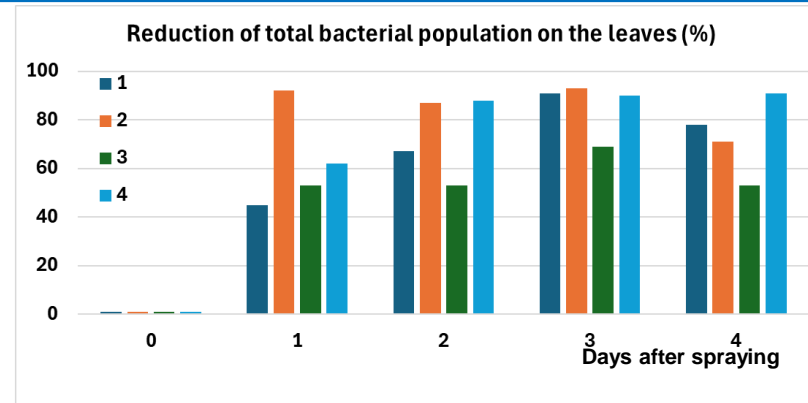
Effective frost event tackling schemes for crop protection



One of the objectives of the LIFE FROSTDEFEND project was to evaluate selected copper-based pesticides, commonly used by farmers for crop protection against fungi and bacteria, in reducing the populations of ice-nucleation-active bacteria and their ice-nucleation activity on lemon tree leaves when applied in a timely manner ahead of an anticipated frost event.

Different spraying schemes were tested, and the biological parameters of the plants' leaves were measured over several consecutive days following the spraying.

- ❑ The greatest reduction in bacterial populations was observed a few days after spraying for all the tested compounds.
- ❑ Ice nucleation activity on the leaves was significantly reduced, though not entirely eliminated, for two of the four tested compounds after spraying.



Testing the efficiency of different spraying schemes



The annual LIFE-FROSTDEFEND two-day meeting took place successfully in Thessaloniki on October 7–8, 2024. Organized by MSENSIS S.A. in collaboration with the LIFE-FROSTDEFEND team, the event welcomed both in-person and virtual participants. The agenda featured a thorough project overview, updates on deliverable development, and discussions on monitoring the impact of project actions.



The meeting was also attended by members of the Advisory Board, who provided valuable feedback to guide the project's next steps and ensure alignment with its goals.

Their input was crucial in refining strategies to maximize the project's impact, with a particular focus on supporting farmers and promoting sustainable practices in frost-prone regions.

Dissemination and Networking Highlights



The LIFE FROSTDEFEND consortium made a significant impact at the 20th International Plant Protection Congress, held at the prestigious Athens Megaron International Conference Centre from July 1st to 5th, 2024 (<https://www.ippcathens2024.gr/>). This Congress attracted over 800 participants working on Plant Protection from around the world. The consortium partner Agricultural University of Athens organized the Concurrent Session 52 titled “Frost damage mitigation strategies for crops, organized by project LIFE FROSTDEFEND”.



Prof. D. Georgakopoulos, Dr. K. Geballa Koukoulas from the Agricultural University of Athens, and Dr. N. Dusart from INRAE, presented the background on the creation and use of the Frostdefend tool.

Dr. Lia Lamacque (INRAE, France), Dr. Jean-François Berthoumieu, Research Director of the Association Climatologique de la Moyenne-Garonne et du Sud-Ouest (France), and Professor Steve Lindow (University of California, Berkeley, USA) presented their work during the special session.

Abstracts from the presentations given in the special session can be found at the following link: <https://www.ippcathens2024.gr/abstracts>

The LIFE FROSTDEFEND consortium continues the work for the benefit of farmers whose crops suffer from frost damage.



List of presentations made by LIFE FROSTDEFEND consortium at 20th International Plant Protection Congress:

- ❑ Georgakopoulos, Dimitrios G; Geballa-Koukoulas, Khalil; Gini, Maria; Fetfatzis, Prodromos; Karvelas, Michalis; Karathanos, Vaios T; Gkionis, Panagiotis; Kontogiannatos, Dimitrios; Dusart, Nicolas; Charrier, Guillaume; The Life-Frostdefend project: creation of a forecasting tool for frost damage risk and mitigation actions for tree crops.
- ❑ Geballa-Koukoulas, Khalil; Gini, Maria; Fetfatzis, Prodromos; Karvelas, Michalis; Karathanos, Vaios T; Gkionis, Panagiotis; Kontogiannatos, Dimitrios; Dusart, Nicolas; Charrier, Guillaume; Sarigiannidis, Georgios; Epiphytic and aerial ice nucleation active bacteria in lemon tree orchards.
- ❑ Dusart, Nicolas; Gini, Maria; Georgakopoulos, Dimitrios G; Fetfatzis, Prodromos; Geballa-Koukoulas, Khalil; Karvelas, Michalis; Loukopoulos, Themis; Gkionis, Panagiotis; Sarigiannidis, Georgios; Eleftheriadis, Konstantinos; Citrus Frost Vulnerability: Exploring the Role of Ice Nucleation Active Bacteria and Temperature Acclimation



Dissemination and Networking Highlights



- ✓ The LIFE FROSTDEFEND consortium was invited and participated in the 4th meeting of the Forum on Best Practices in the Agri-Food Supply Chain in Brussels on October 9, 2024.
- ✓ The EU Common Agricultural Policy (EU CAP) Network, in cooperation with the European Commission's Directorate-General for Agriculture and Rural Development, organized the fourth session of the 'Forum on Best Practices in the Agri-Food Supply Chain', launched in 2021 as one of the actions envisaged under the Farm to Fork Strategy, with the aim of enhancing cooperation between primary producers, improving their position within the food supply chain and increasing market transparency.
- ✓ The LIFE FROSTDEFEND project was represented by Prof. D. Georgakopoulos (Agricultural University of Athens).
- ✓ The next EU CAP, may link agricultural subsidies to CO₂ emissions. LIFE FROSTDEFEND promotes frost protection that align with potential new CAP requirements, providing sustainable solutions for farmers in frost-prone regions.



More on the 4th EU CAP forum and the EU CAP Network can be found here: <https://eu-cap-network.ec.europa.eu/.../4th-meeting-forum...>



LIFE FROSTDEFEND

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